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**RESPONSE TO CITIZEN COMMENT**

**05/15/1989**

**DOE-FMPC  
8  
LETTER**

**CINC SANE/FREEZE**



**Department of Energy**

**FMPC Site Office**  
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May 15, 1989

Ms. Yana Keck  
Cincinnati SANE/FREEZE  
103 William Howard Taft  
Cincinnati, Ohio 45202

Dear Ms. Keck:

Thank you for your request for information from the U.S. Department of Energy. In response to your request, I have attached a copy of the executive summary of the DOE 2010 Report. A full copy of the report will be sent to you separately.

Please excuse the delay in responding to your request. We hope to see you at future community meetings regarding the Feed Materials Production Center.

Sincerely,

  
James A. Reafsnyder  
FMPC Site Manager

M-4:Wyatt

Attachment: As stated

**UNITED STATES DEPARTMENT OF ENERGY  
NUCLEAR WEAPONS COMPLEX  
MODERNIZATION REPORT**

**Report to the Congress  
by the  
President**

**DECEMBER 1988**

## EXECUTIVE SUMMARY

The major assumption in this Plan is that nuclear weapons will remain a principal element of the security of the United States for the foreseeable future. The Nuclear Weapons Complex (Complex) of the U.S. Department of Energy (DOE) provides the nuclear weapons that support the nuclear deterrent policy. This support includes production of nuclear material; design and manufacture of nuclear weapons; surveillance and maintenance of nuclear weapons in the stockpile; research, development, and testing of nuclear devices; and modernization of the nuclear weapons stockpile.

Much of the Complex was constructed more than 30 years ago. Some facilities are experiencing operability problems due to obsolete equipment and operational systems and to stresses in complying with more stringent environmental, safety, and health standards and requirements. Many facilities throughout the Complex are approaching the end of their useful lives. For example, the existing production reactors, at their current power limits, have limited operational capability. All three reactors are shut down for safety system improvements and are not expected to be fully operational until late 1989. In spite of these improvements and increasingly extensive maintenance, the reactors may not be able to achieve acceptable production efficiencies. Other elements of the Complex, as discussed in the report, are approaching a similar critical state to that of the production reactors. Correcting these inadequacies and placing these operations in an exemplary condition will require the support of both the Congress and the Administration to a major, long-term modernization effort.

The Congress recognized that a comprehensive (instead of piecemeal) approach was needed to address these problems and directed that a study be conducted and a plan prepared by the President "...for the modernization of the Nuclear Weapons Complex that takes into account the overall size, productive capacity, technology base, and investment strategy necessary to support long-term national security objectives." The study has been completed and a Modernization Plan (Plan) has been prepared.

The study shows that the entire Complex will require extensive modernization over the next 15-20 years to meet its obligations well into the next century. The principal requirements central to the need for modernizing the Complex are:

- o Meeting the Department of Defense (DoD) requirements for a modern nuclear weapons stockpile;
- o Maintaining nuclear weapons technological superiority;
- o Complying with environmental, safety, and health requirements; and
- o Providing the flexibility to adapt to changing production and technological needs with minimum impact on schedules and cost.

To meet these requirements, the Complex must retain all of its primary functions but must undergo several major modifications to its infrastructure. New production reactor capacity will be provided with the preferred sites being the Savannah River Plant and the Idaho National Engineering Laboratory. A Special Isotope Separation Plant is expected to be constructed at the Idaho National Engineering Laboratory to convert DOE inventories of fuel-grade plutonium into weapon-grade plutonium. Nuclear material operations will be consolidated to the extent that efficiency, environmental, or safety aspects of the operation can be improved and transportation of nuclear materials can be minimized. The most significant physical changes will be the relocation of all operations from the Rocky Flats Plant to other DOE facilities and the termination of Nuclear Materials Production activities at the Hanford Plant and at the Fernald Feed Materials Production Center. Nuclear materials activities at the Mound Plant will be transferred to existing DOE facilities that have nuclear materials operations. Waste Management and Environmental Restoration activities at these sites will continue until completion. Design and testing of new weapon concepts, certification of the safety and reliability of the nuclear weapons stockpile, and applied research will continue to be performed by the three nuclear weapons laboratories.

The modernized Complex will be more streamlined and cost effective with the flexibility to adapt to a broad spectrum of potential military, political, and technological futures. The resulting Complex will meet all applicable standards for protection of the environment and of the safety and health of employees and the public.

The key modernization actions are prioritized into three categories:

- o Those actions that are time-critical and essential for current operations;
- o Those actions essential for continued operations; and
- o Those actions needed to optimize the Complex for the future.

Figure 1 summarizes the prioritized modernization activities identified in the Plan and shows their tentative implementation schedules. In addition, key short-term activities, important in the transition period before modernization is completed, are addressed in the Plan (Section 6.3).

*In developing a Resource Plan for modernization, all future demands for resources by the Complex were considered, whether or not they could be directly related to modernization of the Complex. Inclusion of all resources is not intended to provide a "twenty-year budget," but to recognize that competition for funding will require difficult tradeoffs and prioritization of all programs. An example is the Environmental Restoration program which includes environmental cleanup and decontamination and decommissioning of inactive facilities; although not a modernization activity per se, the costs of the Environmental Restoration activities are inescapable consequences of modernization.*

Figure 1  
Priority and Schedule of Key Modernization Actions

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\* Note Lines indicate time from  
Project start to completion

**Priority 1 - Time-Critical & Essential:**

Environmental, Safety and Health  
Corrective Action

Upgrade Plutonium Recovery (Rocky Flats)

New Production Reactor Capacity

Special Isotope Separation for Weapon-  
Grade Plutonium

**Priority 2 - Essential:**

Upgrade Virgin Plutonium Infrastructure  
at Savannah River

Upgrade Uranium Facilities at Y-12

Nuclear Weapons Production Complex -  
Existing Plant Modernization

Nuclear Materials Production Complex -  
Upgrade and Renovate Facilities

Research, Development, and Testing  
Complex - Modernization

Vitrification Facilities for Waste Packaging:  
Savannah River  
Hanford

Idaho National Engineering Laboratory

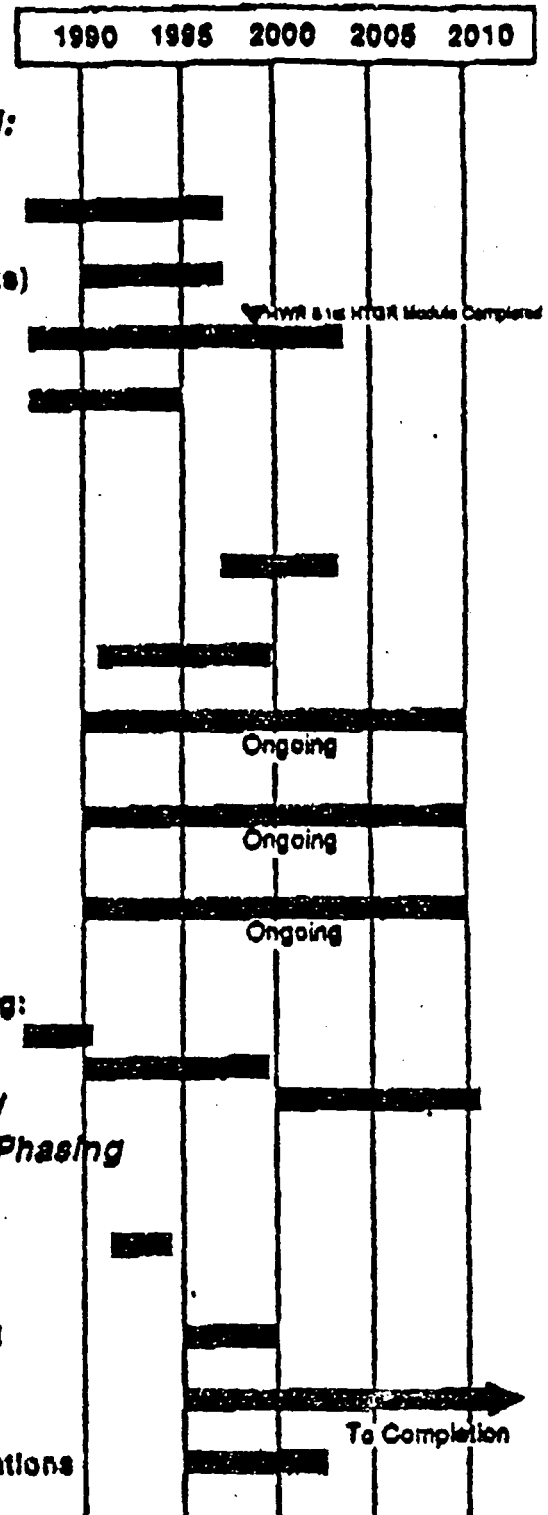
**Priority 3 - Optimal for the Future: (Phasing  
dependent on Funding)**

Close out Feed Materials Production  
Center (Fernald)

Phase out Weapons Programs at Hanford

Relocate Activities of Rocky Flats Plant

Relocate Mound Nuclear Materials Operations



HWR - Heavy-Water Reactor

HTGR - High-Temperature Gas Cooled Reactor

Specific annual funding profiles for accomplishing the modernization activities in this Plan are not included since such funding must be considered in the context of the total national security requirements in any given year. While the budget for Fiscal Year (FY) 1990 will be generally consistent with this Plan, accomplishing all recommendations of the Plan in the timeframe specified will require resources greater than those now expected to be available in future years. Thus, schedules shown in this document must be regarded as tentative.

The major modernization issues that must be resolved to implement this Plan effectively are:

- o The timing and level of sustained resources required independent of fluctuating annual production requirements;
- o Environmental, safety, and health issues; and
- o Issues associated with relocations, consolidations, and transportation.

The estimated cost\* for modernization and environmental restoration for the period FY 1990 through FY 2010 is about \$81 billion; about \$52 billion is associated with modernization. A breakdown by activity of the cumulative modernization and environmental restoration incremental costs for the 21-year period are shown in Figure 2.

Present and future operation of the Complex will require environmental, safety, and health corrective actions and a base program to ensure that these operations comply with applicable laws, standards, and regulations. These actions are separate from environmental restoration activities. Evolving regulations and standards and their application and differences in regional and state approaches will require realistic strategies that are consistently applied across the entire Complex. Funding constraints and our technical ability to achieve cost-effective compliance in facilities that are 30 or more years old dictate that a realistic schedule be established to replace or upgrade our facilities. As new facilities are built or existing facilities are upgraded for programmatic reasons, reviews will be conducted to ensure that state-of-the-art technology is provided to protect the environment and the safety and health of workers and the public. Approximately \$25 billion will be required over the next 20 years for the environmental, safety, and health base program and corrective actions.\*\* This corresponds to a total increase of \$3.0 billion above the FY 1989 appropriation level accumulated over the 21-year period.

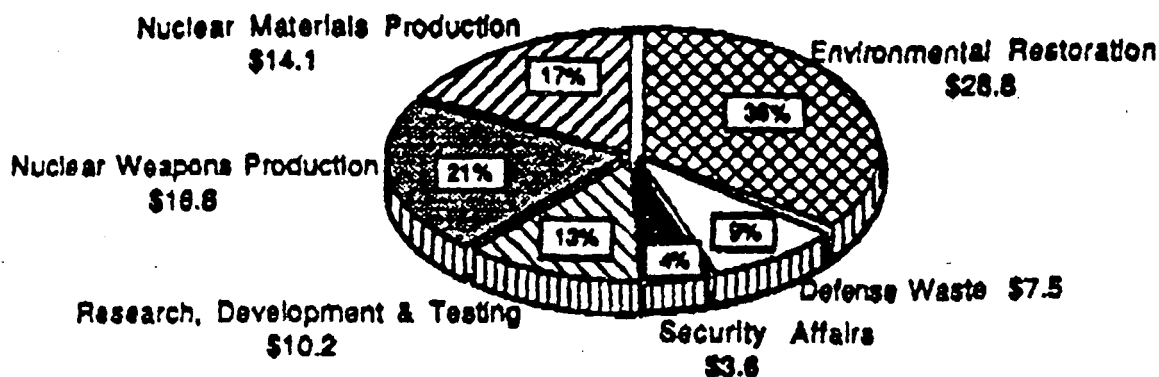
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\* The costs presented in the resource plan are not budget quality, but rather first-level approximations for use in identifying future trends and levels of effort. The cost of modernization in this report is expressed as the increment above the FY 1989 appropriated level summed over the 21-year period, FY 1990 through FY 2010. All dollar figures are expressed in constant FY 1990 dollars. The FY 1989 appropriated level expressed in FY 1990 dollars is \$7.8 billion. All estimates exclude funding for the Naval reactors program.

\*\* This amount is included in the funding for the major programs listed in Section 2 and should not be added separately.

Figure 2

### FY 1990 - FY 2010 Cumulative Increase over Funding at FY 1989 Level



Total : \$81 Billion in FY 1990 Dollars  
for FY 1990 thru FY 2010

Apart from modernization, the cleanup and environmental restoration of the various sites present a technological and financial challenge that may dictate the degree and timing of this activity. The rate of increase and the level of funding can be adjusted to accommodate national priorities.

Major environmental restoration will be required at the Rocky Flats, Hanford, and Fernald sites when the Nuclear Weapons Complex activities are either relocated or terminated. As an interim program, certain upgrades will be required at the Rocky Flats Plant to maintain operations at an acceptable level of risk while the relocated facilities are being constructed.

This report highlights:

- o Nuclear arms control initiatives under consideration do not eliminate the need for nuclear deterrence.
- o The Nuclear Weapons Complex must be modernized so that nuclear deterrence can continue to be a principal element of the U.S. security policy.
- o The nuclear weapons stockpile does not exist in a static state but requires modernization to meet changing threats and to enhance the safety and operational characteristics of the weapons.

- o Modernizing the Complex will provide increased productivity and efficiency that will, over time, result in cost savings through consolidations and replacement of worn-out facilities that require significant maintenance and upgrading actions.
- o The cost of modernization and environmental restoration will require a significant increase in funding for the next two decades.
- o The approximately \$52 billion incremental expenditure above the FY 1989 level over the next 21 years to finance modernization will be well spent to maintain nuclear deterrence and to ensure acceptably low levels of risks to employees and the public.
- o The approximately \$29 billion above the FY 1989 level over the next 21 years required for Environmental Restoration is necessary as a result of past operations and planned relocations. This activity will continue beyond the period covered by the Modernization Plan until all required sites are restored.

*Both the Administration and Congress recognize the need for the actions set forth in this report; expeditious implementation of the proposed Plan is recommended.*